Workgroup Responses to Data Issues
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Workgroup Responses to Data Issues

1. What are sources of information that States need in order to determine and update allocations on a periodic basis?

2. What equipment do sources use to measure output?

3. Is it necessary to convert heat input, steam output, and electrical output?

4. How do States receive output data for setting future allocations ?

1. What electrical generation information do States need?

Where do plants measure electricity?
- at each generator
- at various plant auxiliaries

How do plants determine net generation?
- sometimes determined as the sum of gross generation minus auxilary usage
- usually measured at the step-up transformer connecting the plant to the transmission grid

What supporting records are needed for MWe (e.g., quality assurance test results on megawatt meters)?
- Transformers should require no additional QA/QC beyond the manufacturer's certification
- Solid-state meters should require minimal testing
- Electromechanical or rotating meters require more frequent testing and calibration
- Could check accuracy by examining electricity purchase and sales information

Should power output be measured as gross generation at the generator or net generation after plant power requirements have been consumed?
Workgroup members disagreed:
- ♦ Some preferred net generation
- ♦ Others preferred gross generation
- ♦ One suggested a variant of net generation:
  - ▸sum of gross outputs from all units at plant minus sum of electricity or steam used internally associated with generating power or steam

Can net generation be measured at the point of sale?

- Yes, if “point of sale” is the transmission side of step-down transformer or busbar
- Not practical to measure at other points of sale

Can all electric generating plants measure net generation at the same general location and with the same method?
- Generally yes
- Minor measurement differences between plants or systems (less than 1%)

***EPA tracks and trues up allowance accounts at the unit level*.**
How can EPA or States allocate based on generation measured at the plant level?
- Most electric power plants can measure net MWh output at the unit level
- Can allocate net output to unit level using gross output or other factors
- Unit level allocations are not necessary; could do plant-level allocations
    - Plant operator could show allowances for plant cover emissions from all stacks at plant
    - EPA may need to modify its tracking system

What steam output information do States need?
How is steam output measured?
With what equipment?
- With pressure taps on steam pipes exiting boilers
- ASTM provides specifications for testing and measurement

In which units is steam output measured?
- Thousand pounds of steam per hour at measured pressure and temperature
- Pressure and temperature determines the energy content per pound of steam

What mechanical output information do States need?
Is mechanical output going to be a form of output from either industrial or electrical generating units?
- Probably not, at least for sources with heat input greater than 250 mmBtu/hr
- Only mechanical drive sources would be pipeline compressor drives

If mechanical output is used, how is mechanical output measured? What are units of measurement (J, Ft-lb)?
- Mechanical output can be measured, probably not needed
- Units of measure: horsepower-hour

2. What equipment do sources use to measure output?

Is standard equipment available to measure power output?
- Yes--potential transformers, current transformers, and watt-hour meters
- Measurement equipment does not vary based upon the source of energy, the unit type or the generator/turbine type

- Metering equipment does depend on the size of the facility

Additional comment:

- Minimize disruptions to unit operation due to maintenance on metering equipment

What standards exist for ensuring the accuracy of output monitoring equipment?
For instrument transformers:

- IEEE Standard No. 57.13
- ANSI Standard No. C93.1

For meters:

- ANSI Standard No. 12.10
- ANSI Standard No. 12.16

Do sources typically use these accuracy standards?
Yes.

What is the typical error found in output measurements?
"Relay accuracy class" equipment:
- accuracy of 2 percent or better

"Revenue metering accuracy class" equipment
- accuracy of 1 percent or better

Typical accuracy of net MWh is 0.3-0.1%

Is the error different for steam and for electricity?
No response given

3. Is it necessary to convert heat input, steam output, and electrical output?

Should steam output be converted to electrical output?
Workgroup members disagreed

If so, how should steam energy be converted to electrical power equivalent?

- Convert added steam energy to electric power using 3,413 Btu/kWh
- Need efficiency of conversion (between 38% and 100%)

If steam energy were not converted, how could allocations be treated for cogenerators?

- Could give allowances for steam output from industrial sector budget
- Could give allowances for electric output from EGU sector budget

If output data were not available directly, what would be appropriate assumptions to make about the efficiency of conversion from heat input to output?

- Sources not reporting output data could be restricted from allowance trading
- Sources not reporting output data could be penalized by assuming a low conversion efficiency (10,500—12,000 Btu/kWh)

4. How do States receive output data for setting future allocations ?

If allocations were based on electrical generation only, could a State use EIA form 759 for whichever ozone seasons it selects?
Yes.

- States could use any year's data
- Encourage states to use most recent data

If a State decides to regulate process sources under its SIP, how will the State determine whether it is easier to find or measure input or output data?

- Specific to the process source
- Input information is likely to be less competitively sensitive that output data